# BZX55C2V4 THRU BZX55C100

## List

# BZX55C2V4 THRU BZX55C100

## 500mW Axial Lead Zener Diodes - 2.4V-100V

## Features

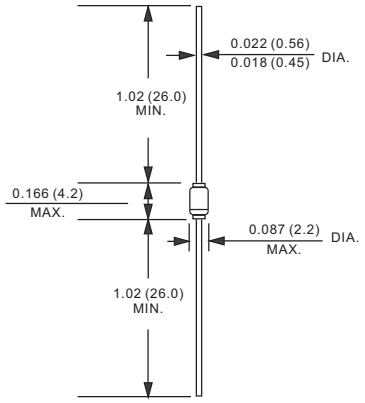
- Silicon epitaxial planar chip structure.
- Glass hermetically sealed package.
- Wide zener reverse voltage range 2.4V to 100V.
- $V_Z$ Tolerance Selection of ±5%
- Small package size for high density applications.
- Ideally suited for automated assembly processes.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

## Mechanical data

- Case : Glass, DO-35G
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.125 gram

## Package outline

DO-35G




Dimensions in inches and (millimeters)

## Maximum ratings (at $T_A$=25°C unless otherwise noted)

| PARAMETER | CONDITIONS | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Forward voltage | $I_F$ = 200 mA | $V_F$ | | | 1.50 | V |
| Power Dissipation | l=4mm TL≤25℃ | $P_D$ | | | 500 | mW |
| Operating junction temperature range | | $T_J$ | -55 | | +150 | °C |
| Storage temperature range | | $T_{STG}$ | -65 | | +175 | °C |

# BZX55C2V4 THRU BZX55C100

## Electrical characteristics (at $T_A$=25°C unless otherwise noted)

| Part No. | Marking code | Zener voltage | | | Test current | Zener impedance | | | Leakage current | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_Z$ @ $I_{ZT}$(Volts) | | | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$ | $V_R$ |
| | | Min. | Nom. | Max. | mA | (Ω)Max | (Ω)Max | mA | (uA)Max | Volts |
| BZX55C2V4 | BZX55C2V4 | 2.28 | 2.4 | 2.52 | 5.0 | 85 | 600 | 0.25 | 50 | 1.0 |
| BZX55C2V7 | BZX55C2V7 | 2.57 | 2.7 | 2.84 | 5.0 | 85 | 600 | 0.25 | 10 | 1.0 |
| BZX55C3V0 | BZX55C3V0 | 2.85 | 3.0 | 3.15 | 5.0 | 90 | 600 | 0.25 | 4.0 | 1.0 |
| BZX55C3V3 | BZX55C3V3 | 3.14 | 3.3 | 3.47 | 5.0 | 90 | 600 | 0.25 | 2.0 | 1.0 |
| BZX55C3V6 | BZX55C3V6 | 3.42 | 3.6 | 3.78 | 5.0 | 90 | 600 | 0.25 | 2.0 | 1.0 |
| BZX55C3V9 | BZX55C3V9 | 3.71 | 3.9 | 4.10 | 5.0 | 90 | 600 | 0.25 | 2.0 | 1.0 |
| BZX55C4V3 | BZX55C4V3 | 4.09 | 4.3 | 4.52 | 5.0 | 90 | 600 | 0.25 | 1.0 | 1.0 |
| BZX55C4V7 | BZX55C4V7 | 4.47 | 4.7 | 4.94 | 5.0 | 80 | 600 | 0.25 | 0.5 | 1.0 |
| BZX55C5V1 | BZX55C5V1 | 4.85 | 5.1 | 5.36 | 5.0 | 60 | 550 | 0.25 | 0.1 | 1.0 |
| BZX55C5V6 | BZX55C5V6 | 5.32 | 5.6 | 5.88 | 5.0 | 40 | 450 | 0.25 | 0.1 | 1.0 |
| BZX55C6V2 | BZX55C6V2 | 5.89 | 6.2 | 6.51 | 5.0 | 10 | 200 | 0.25 | 0.1 | 2.0 |
| BZX55C6V8 | BZX55C6V8 | 6.46 | 6.8 | 7.14 | 5.0 | 8 | 150 | 0.25 | 0.1 | 3.0 |
| BZX55C7V5 | BZX55C7V5 | 7.13 | 7.5 | 7.88 | 5.0 | 7 | 50 | 0.25 | 0.1 | 5.0 |
| BZX55C8V2 | BZX55C8V2 | 7.79 | 8.2 | 8.61 | 5.0 | 7 | 50 | 0.25 | 0.1 | 6.2 |
| BZX55C9V1 | BZX55C9V1 | 8.65 | 9.1 | 9.56 | 5.0 | 10 | 50 | 0.25 | 0.1 | 6.8 |
| BZX55C10 | BZX55C10 | 9.50 | 10 | 10.50 | 5.0 | 15 | 70 | 0.25 | 0.1 | 7.5 |
| BZX55C11 | BZX55C11 | 10.45 | 11 | 11.55 | 5.0 | 20 | 70 | 0.25 | 0.1 | 8.2 |
| BZX55C12 | BZX55C12 | 11.40 | 12 | 12.60 | 5.0 | 20 | 90 | 0.25 | 0.1 | 9.1 |
| BZX55C13 | BZX55C13 | 12.35 | 13 | 13.65 | 5.0 | 26 | 110 | 0.25 | 0.1 | 10 |
| BZX55C15 | BZX55C15 | 14.25 | 15 | 15.75 | 5.0 | 30 | 110 | 0.25 | 0.1 | 11 |
| BZX55C16 | BZX55C16 | 15.20 | 16 | 16.80 | 5.0 | 40 | 170 | 0.25 | 0.1 | 12 |
| BZX55C18 | BZX55C18 | 17.10 | 18 | 18.90 | 5.0 | 50 | 170 | 0.25 | 0.1 | 13 |
| BZX55C20 | BZX55C20 | 19.00 | 20 | 21.00 | 5.0 | 55 | 220 | 0.25 | 0.1 | 15 |
| BZX55C22 | BZX55C22 | 20.90 | 22 | 23.10 | 5.0 | 55 | 220 | 0.25 | 0.1 | 16 |
| BZX55C24 | BZX55C24 | 22.80 | 24 | 25.20 | 5.0 | 80 | 220 | 0.25 | 0.1 | 18 |
| BZX55C27 | BZX55C27 | 25.65 | 27 | 28.35 | 5.0 | 80 | 220 | 0.25 | 0.1 | 20 |
| BZX55C30 | BZX55C30 | 28.50 | 30 | 31.50 | 5.0 | 80 | 220 | 0.25 | 0.1 | 22 |
| BZX55C33 | BZX55C33 | 31.35 | 33 | 34.65 | 5.0 | 80 | 220 | 0.25 | 0.1 | 24 |
| BZX55C36 | BZX55C36 | 34.20 | 36 | 37.80 | 5.0 | 80 | 220 | 0.25 | 0.1 | 27 |
| BZX55C39 | BZX55C39 | 37.05 | 39 | 40.95 | 2.5 | 90 | 500 | 0.25 | 0.1 | 30 |
| BZX55C43 | BZX55C43 | 40.85 | 43 | 45.15 | 2.5 | 90 | 600 | 0.50 | 0.1 | 33 |
| BZX55C47 | BZX55C47 | 44.65 | 47 | 49.35 | 2.5 | 110 | 700 | 0.50 | 0.1 | 36 |
| BZX55C51 | BZX55C51 | 48.45 | 51 | 53.55 | 2.5 | 125 | 700 | 0.50 | 0.1 | 39 |
| BZX55C56 | BZX55C56 | 53.20 | 56 | 58.80 | 2.5 | 135 | 1000 | 0.50 | 0.1 | 43 |
| BZX55C62 | BZX55C62 | 58.90 | 62 | 65.10 | 2.5 | 150 | 1000 | 0.50 | 0.1 | 47 |
| BZX55C68 | BZX55C68 | 64.60 | 68 | 71.40 | 2.5 | 200 | 1000 | 0.50 | 0.1 | 51 |
| BZX55C75 | BZX55C75 | 71.25 | 75 | 78.75 | 2.5 | 250 | 1500 | 0.50 | 0.1 | 56 |
| BZX55C82 | BZX55C82 | 77.90 | 82 | 86.10 | 2.5 | 300 | 2000 | 0.50 | 0.1 | 62 |
| BZX55C91 | BZX55C91 | 86.45 | 91 | 95.55 | 1.0 | 450 | 5000 | 0.10 | 0.1 | 68 |
| BZX55C100 | BZX55C100 | 95.00 | 100 | 105.0 | 1.0 | 450 | 5000 | 0.10 | 0.1 | 75 |

Note : 5% tolerance of Zener voltage

## Rating and characteristic curves (BZX55C2V4 THRU BZX55C100)

FIG.1-TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE

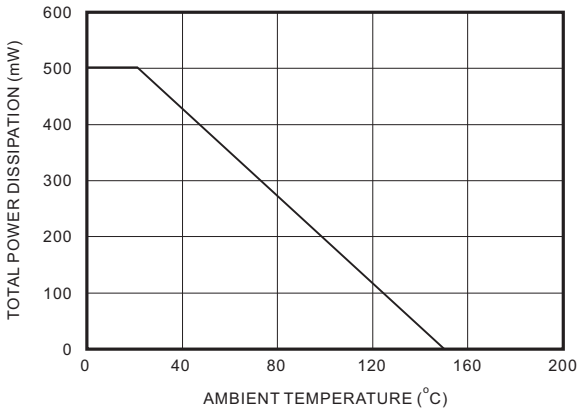



FIG. 2-TYPICAL CHANGE OF WORKING VOLTAGE UNDER OPERATING CONDITIONS AT $T_A$ =25°C

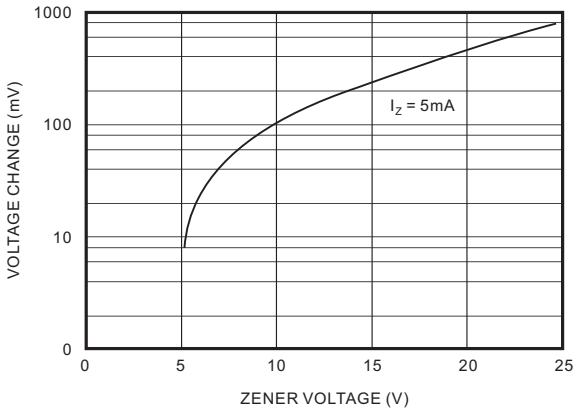



FIG. 3-TYPICAL CHANGE OF WORKING VOLTAGE VS. JUNCTION TEMPERATURE

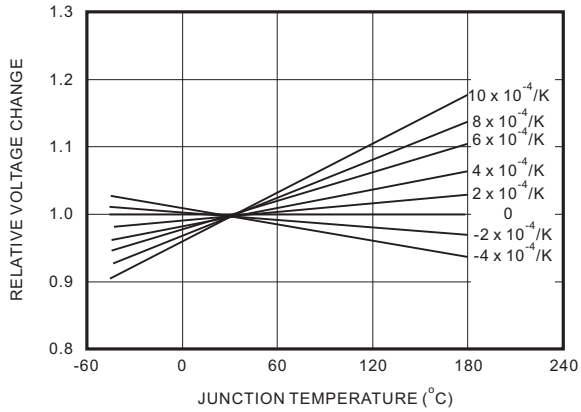



FIG. 4-TEMPERATURE COEFFICIENT OF VZ VS. Z-VOLTAGE

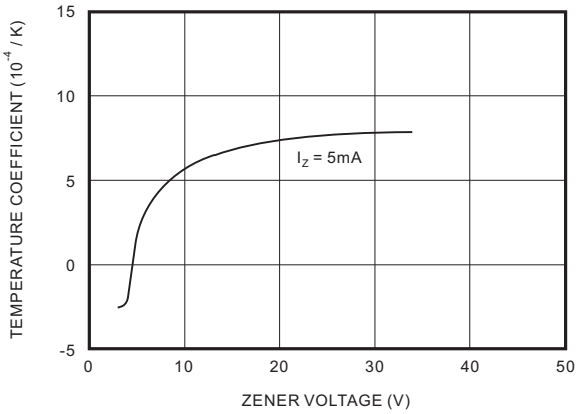
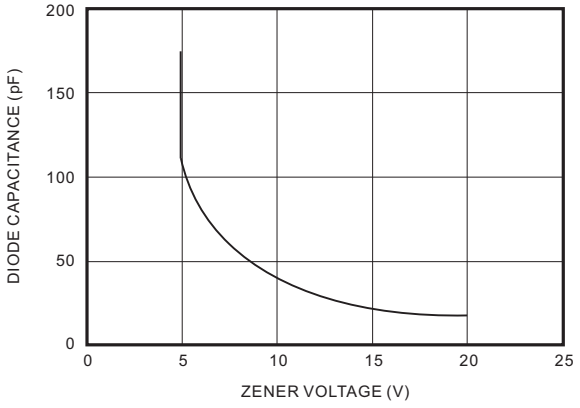



FIG. 5-DIODE CAPACITANCE VS. Z-VOLTAGE



## Rating and characteristic curves (BZX55C2V4 THRU BZX55C100)

FIG. 6-FORWARD CURRENT VS. FORWARD VOLTAGE

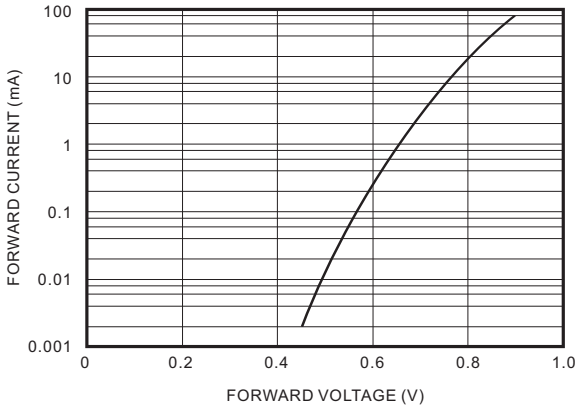



FIG. 7-Z-CURRENT VS. Z-VOLTAGE

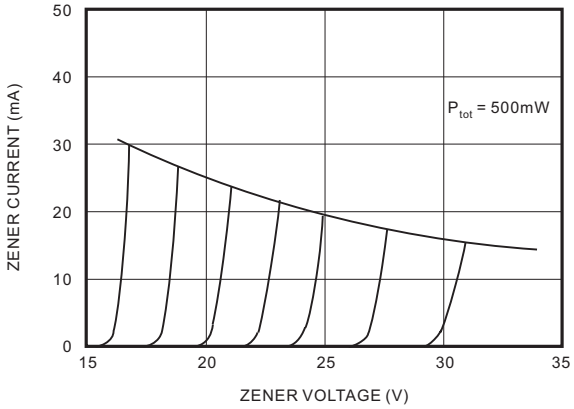



FIG. 8-Z-CURRENT VS. Z-VOLTAGE

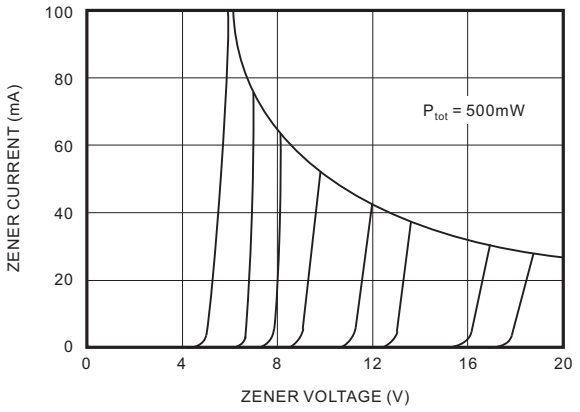



FIG. 9-DIFFERENTIAL Z-RESISTANCE VS. Z-VOLTAGE

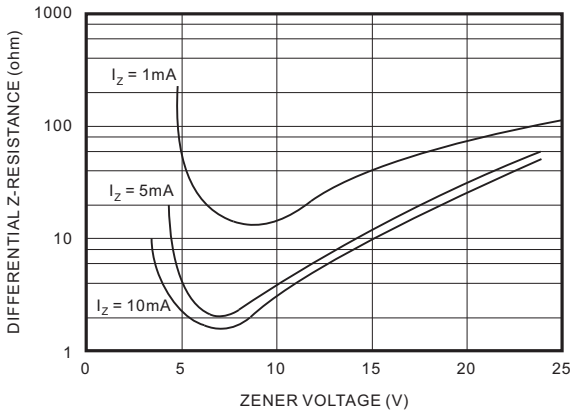
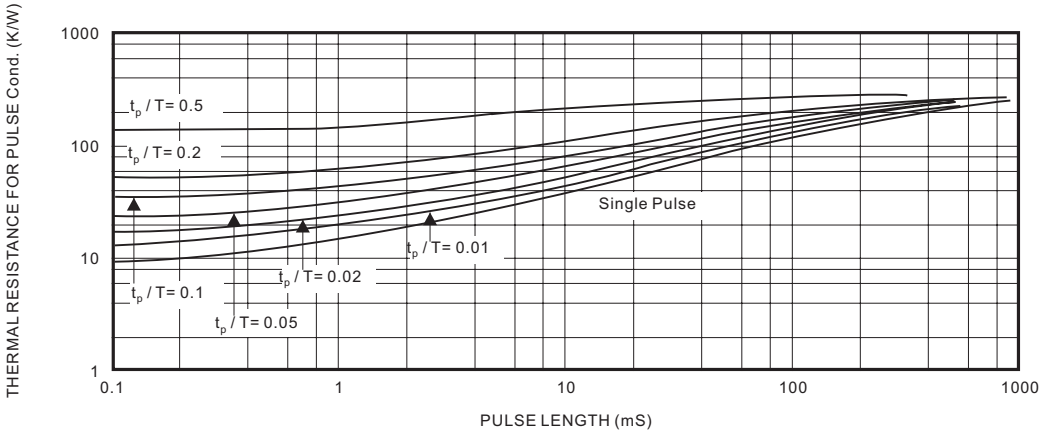



FIG. 10-THERMAL RESPONSE

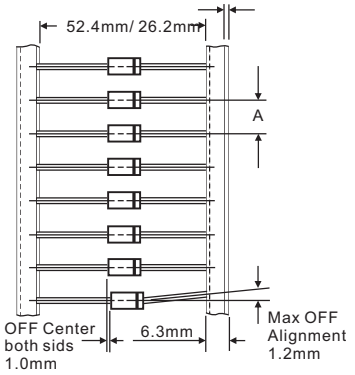


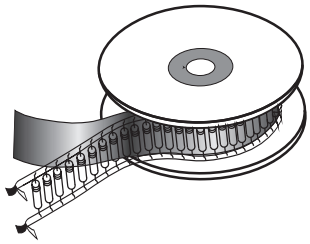
# BZX55C2V4 THRU BZX55C100

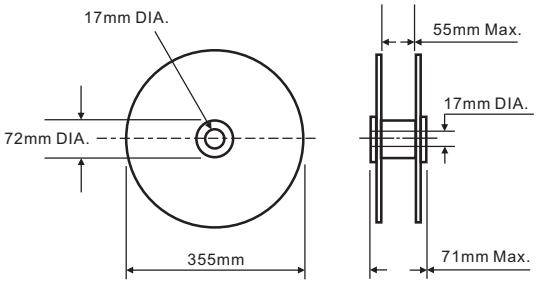
## Pinning information

| Pin | Simplified outline | Symbol |
|---|---|---|
| Pin1 cathode<br>Pin2 anode |  |  |

## Taping & bulk specifications for AXIAL devices






REEL PACKING

| DEVICE CASE TYPE | Q'TY 1 (PCS / REEL) | COMPONENT SPACING "A" in FIG. A | CARTON SIZE (m/m) | Q'TY 2 (PCS / CARTON) | APPROX. CROSS WEIGHT(kg) |
|---|---|---|---|---|---|
| DO-35G/52mm | 5,000 | 5 mm | 360 * 340 * 370 | 20,000 | 7.3 |

AMMO PACKING

| DEVICE CASE TYPE | Q'TY 1 (PCS / BOX) | INNER BOX SIZE (m/m) | CARTON SIZE (m/m) | Q'TY 2 (PCS / CARTON) | APPROX. CROSS WEIGHT(kg) |
|---|---|---|---|---|---|
| DO-35G/26mm | 5,000 | 250 * 78 *48 | 420 * 270 * 330 | 150,000 | 16.7 |
| DO-35G/52mm | 5,000 | 250 *7 8 *78 | 420 * 270 * 330 | 100,000 | 15.0 |

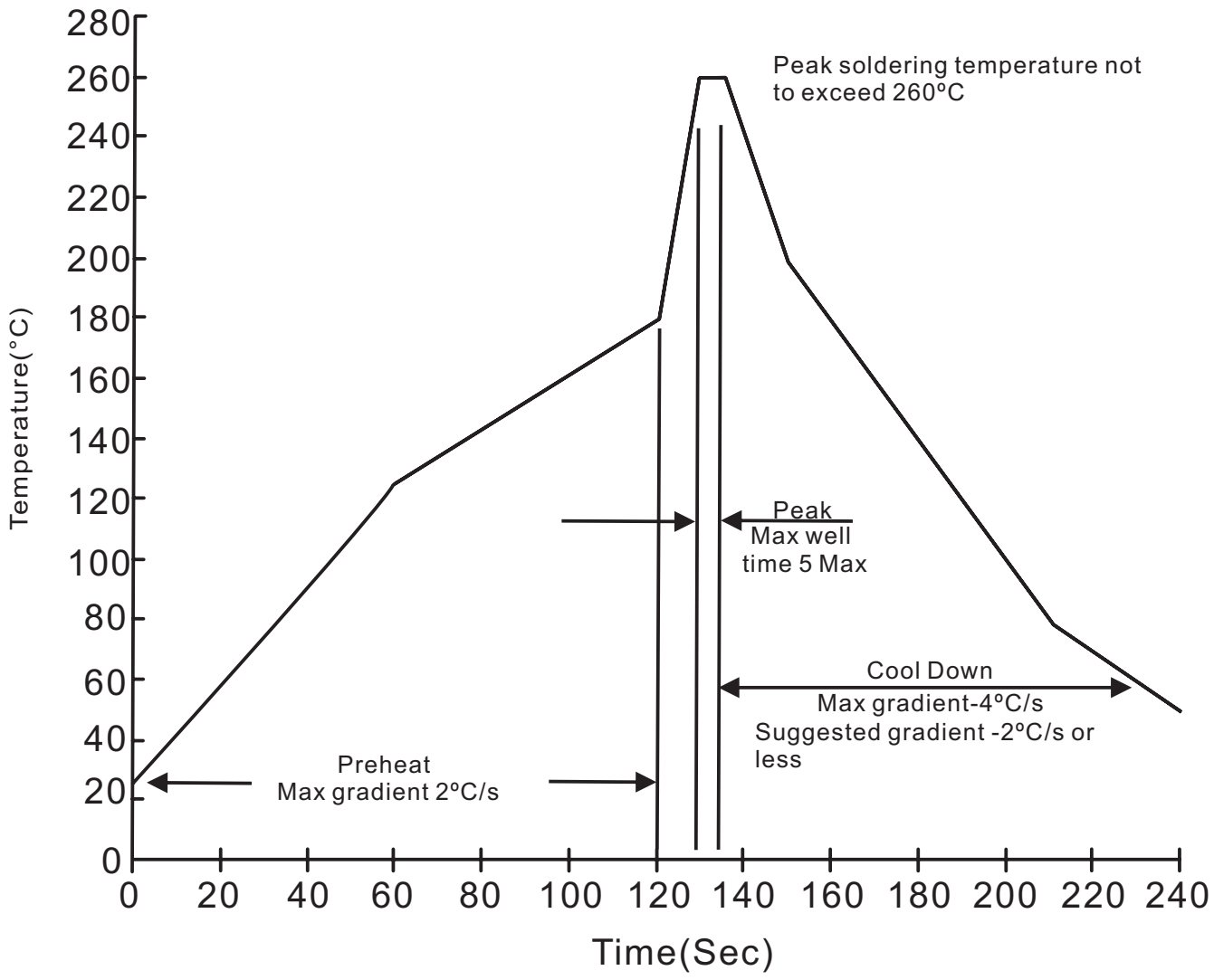
# BZX55C2V4 THRU BZX55C100

BULK PACKING

| DEVICE CASE TYPE | Q'TY 1 (PCS / BOX) | INNER BOX SIZE (m/m) | CARTON SIZE (m/m) | Q'TY 2 (PCS / CARTON) | APPROX. CROSS WEIGHT(kg) |
|---|---|---|---|---|---|
| DO-35G | 2,000 | 96 * 80 * 42 | 410 * 335 * 265 | 120,000 | 17.4 |

**Suggested thermal profiles for soldering processes**

1.Lead free temperature profile wave-soldering



# BZX55C2V4 THRU BZX55C100

## High reliability test capabilities

| Item Test | Conditions | Reference |
|---|---|---|
| 1. Solder Resistance | at 260±5°C for 10±2sec.<br>immerse body into solder 1/16"±1/32" | MIL-STD-750D<br>METHOD-2031 |
| 2. Solderability | at 245±5°C for 5 sec. | MIL-STD-202F<br>METHOD-208 |
| 3. Pull Test | 0.25kg in axial lead direction for 10 sec. | MIL-STD-750D<br>METHOD-2036 |
| 4. Bend Lead | 0.25kg weight applied to each lead bending<br>arc 90°±5° for 3 times. | MIL-STD-750D<br>METHOD-2036 |
| 5. High Temperature Reverse Bias | $V_R$=80% rate at $T_J$=150°C for 168 hrs. | MIL-STD-750D<br>METHOD-1038 |
| 6. Pressure Cooker | $15P_{SIG}$ at $T_A$=121°C for 4 hrs. | JESD22-A102 |
| 7. Temperature Cycling | -55°C to +125°C dwelled for 30 min.<br>and transferred for 5min. total 10 cycles. | MIL-STD-750D<br>METHOD-1051 |
| 8. Thermal Shock | 0°C for 5 min. rise to 100°C for 5 min. total 10 cycles. | MIL-STD-750D<br>METHOD-1056 |
| 9. Humidity | at $T_A$=85°C, RH=85% for 1000hrs. | MIL-STD-750D<br>METHOD-1021 |
| 10. High Temperature Storage Life | at 175°C for 1000 hrs. | MIL-STD-750D<br>METHOD-1031 |